

Chapter 7

PREPARING FOR THE WORLD OF WORK

*I will pay more for the ability to deal with
people than any other ability under the sun.*

JOHN D. ROCKEFELLER

*Knowing is not enough; we must apply.
Willing is not enough; we must do.*

GOETHE



PREPARING FOR THE WORLD OF WORK

THE CROSS-CONTENT WORKPLACE READINESS STANDARDS

To help prepare students for a rapidly changing world, the New Jersey State Board of Education adopted five *Cross-Content Workplace Readiness Standards* to be integrated with the seven academic *Standards*. The *Standards* define the skills students need as they pursue college, careers, and adult responsibilities. These *Standards* focus on the requisite skills and knowledge necessary for students to become productive members of the community and the workforce. The *Cross-Content Workplace Readiness Standards* include the following:

- Career planning and work-place skills;
- Use of technology, information, and other tools;
- Critical thinking, decision making, and problem solving;
- Self-management; and
- Safety principles.

Unlike the cumulative progress indicators for the other content areas, the workplace readiness indicators are not organized by grade-level clusters. Because the *Cross-Content Workplace Readiness Standards* and indicators cut across all content areas and grade levels, educational personnel should integrate these concepts into all programs in content-specific and developmentally appropriate ways. To strengthen the linkages between the content areas and the *Cross-Content Workplace Readiness Standards*, the activities and scenarios in this *Framework* include interdisciplinary approaches to workplace readiness. There is a very strong correlation between the *Cross Content Workplace Readiness Standards* and indicators and the *Comprehensive Health Education and Physical Education Standards*. In this *Framework*, every sample learning activity has been cross-referenced with *Workplace Readiness Standards* and indicators. Related workplace readiness indicators “(CCWR: 1.1)” are found at the end of each sample learning activity.

To adequately prepare students for tomorrow’s world, health and physical education teachers should enlist the assistance of the entire educational team. Preparing students for the world of work requires a team effort, each drawing on the collective expertise of its members. The school counselor plays a pivotal role in this process; however, none of this can be accomplished without strong support from building and district level administrators. School staff should not overlook the important contributions of community businesses and agencies to promote and support workplace readiness knowledge and skills. Sample contributions of these individuals and groups are listed in the chart below.

TEAM PLAYERS FOR THE WORKPLACE

School Counselor

Coordinates; consults; collaborates; serves as a resource; assists students in the academic, vocational, and personal arenas.

School Nurse

Facilitates health service learning experiences; arranges for speakers; coordinates visits to community agencies and health care providers; provides hands-on work experiences in the school health office.

Library Media Specialist

Assists students to access print and technological resources; provides volunteer and work experiences for students.

Nutrition Specialist

Provides work experiences; demonstrates consumer and safety skills.

Recreation Specialist

Assists students to plan and implement a community wellness or fitness day; demonstrates safety equipment; discusses costs associated with community recreation programs; provides job and volunteer experiences for students.

Manufacturing Co.

Demonstrates occupational safety measures and policies; demonstrates technology.

PUTTING IT ALL TOGETHER

As society becomes more complex, “traditional” education becomes less relevant due to its fragmentary nature. The combination of interdisciplinary instruction (which combines several content disciplines in a common lesson or activity) and the use of a systems approach (to develop an overview perspective of the actions and forces that impact the activity) produces a highly motivating and engaging context for learning. Experiential education enables students to learn by doing, to plan and design projects, to research possible solutions to specific and general problems and to present the results of their work to others. Students evaluate both the process and the product. These valuable learning experiences integrate academic content so students are able to achieve and in some cases surpass the *Standards*.

The use of “hands-on” learning activities increases student involvement and adds a sense of personal meaning for students. Students are empowered to interact with the “real world” and become excited and committed to projects in which they play key decision-making roles. As needed in the world of work, students learn to communicate, to create, to think on their feet, and to meet tight timelines. Learning to work as part of a team, sometimes as a responsible leader and sometimes as a team player, is an important skill. Part of this process includes learning to communicate effectively. Listening, reflecting, providing constructive feedback, and carefully considering the ideas of others are important skills to take to the workplace. Throughout the process, students gain confidence from the respect and self-satisfaction their success earns.

The following three scenarios illustrate the interdisciplinary, systems-thinking approach to cross-content workplace readiness instruction. While they are presented in elementary, middle, and high school categories, creative teachers can easily adapt the scenarios for use with students at all levels. Connections to health and physical education content follow each activity. The entire text of the *Cross-Content Workplace Readiness Standards* can be found in Appendix E of this *Framework*.



Elementary Level

THE PYRAMID RECONSTRUCTION (Systems Thinking Project)

GRADE LEVEL: 3-4

GOAL: To discuss and debate the system support mechanism that enabled the Great Pyramid of Egypt to be constructed.

MAJOR SKILLS: Problem-Solving; Thinking Processes; Communication

BACKGROUND

The Great Pyramids of Giza, built over 4500 years ago, continue to impress modern engineers and technologists. These tombs are the most famous pyramids, but there are more than 80 other pyramids in Egypt. The largest of the three, the Great Pyramid of King Khufu, was built about 2550 B.C. At its peak, it was 481 feet tall and had a square base of 756 feet on each side. Approximately 2,300,000 blocks of solid limestone, each weighing about 2.5 tons, were used in its construction. Many scholars have offered theories on how the Egyptian accomplished the construction; however, there is no definitive proof substantiating their findings.

THE PROBLEM

To discover a successful technique to move a large stone up an inclined plane.

The ancient Egyptians were faced with many problems while building the pyramids at Giza 4500 years ago. One of the most obvious problems was moving heavy blocks of stone (about 2.5 tons each) into position to build the pyramid. The largest pyramid at Giza is over 450 feet high and used over 2 million stones. To imagine how high the pyramids actually are, they would be more than one and one-half football fields standing end on end.

MATERIALS

The materials include stone, an inclined plane, sand, water, rope, and wood.

QUALITY WORKERS

The Egyptians needed to be quality workers. Clearly, their finished project is evidence of their ability to work both individually and in teams. The Egyptians understood a great deal about technology and practical problem solving and there is clear evidence they were critical thinkers who knew how to make decisions. We know there was division of labor among the ancient Egyptian workers (e.g., there were surveyors, stone cutters, rope pullers, engineers, architects, and designers). The ancient Egyptians worked on the pyramids only three months of the year, when the Nile River overflowed. In order to accomplish this task, workers must have demonstrated self discipline and self-management skills. The Egyptians needed to be safety-minded to insure that the people who were doing this dangerous work would not be hurt.

SAMPLE CONNECTIONS

THE PYRAMID CONSTRUCTION

Here are some examples of ways a classroom teacher can emphasize various content areas using this specific activity and theme.

Visual and Performing Arts

Students explore the elements of design and aesthetics in the beauty of the pyramid itself (e.g., the interior walls were decorated with paintings).

Comprehensive Health Education and Physical Education

Students explore the diet and exercise patterns of the Ancient Egyptians to explain how they were physically and mentally fit for this arduous task. Students also investigate safety measures that might have been in place to protect the workers during the building process and relate them to modern-day occupational safety concerns.

Language Arts Literacy

In addition to the common research and writing skills used in this activity, students present the results of their findings in an oral or multi-media presentation.

Mathematics

Students explore the importance of geometric shapes and properties in designing the pyramids.

Science

Students construct a chart or diagram which illustrates a variety of system components that are necessary to support the building project. Students explore where the water came from and how it would be transported and stored or the system of levers, wheels, and pulleys used to move the stone.

Social Studies

Students examine the significance of the pyramids to Egyptian culture, looking at religious, social, and economic implications.

World Languages

Students study Egyptian culture and history to determine why early settlers from different communities on the Nile agreed to use hieroglyphics. Students relate this to the economics and agriculture of the region and their impact on the building of the pyramid.

Middle School Level

THE REAL GAME

In April 1998, 46 New Jersey school districts participated in *The Real Game* pilot program. *The Real Game* is an experiential learning program that allows students to experience various aspects of the working world through role-play and games. Using a cross-curricular approach, the program can accommodate up to forty middle and junior high school students (grades seven and eight). As teachers guide students through a series of interdisciplinary exercises and events, they become more aware of the world of work and how their actions in school affect their future. Anecdotal records from New Jersey teachers indicate increased interest in academics as students come to experience and understand the relevance of school studies to life.

HOW THE REAL GAME WORKS

Unit One: LEARNING A LIVING

- The Real Game is presented to the participants as a journey in career exploration that will enable the students to “assume the mantle of the expert.”
- Students randomly choose an occupation and explore aspects related to adult life in our society.
- Students complete a pre-test to determine their current knowledge of terminology and other aspects related to the work world and complete the same questionnaire at the end of Unit Five to evaluate their progress.
- Students play the first round of The Spin Game (an interdisciplinary multiple choice question and answer game) and form groups which serve as the basis for subsequent activities.

Unit Two: MAKING A LIVING

- Students explore and express their dreams by choosing items on the wish list that they would like to have in their adult life.
- Students balance a monthly budget and assess what they can actually purchase, considering their income and chance (represented by chance cards).
- Students personalize an activity poster as they gather information on their neighbors' occupations. Activity posters include: transferable skills, annual holidays, gross and net monthly income, income tax, bills, and expenses.

Unit Three: QUALITY OF LIFE

- Students choose leisure and holiday activities while still taking into account the profile assigned to them.
- Students examine necessary daily activities and then choose activities to do during free time.
- Students plan a group holiday while taking into account their budget and the amount of vacation time each member has. This exercise enables students to negotiate and research specific vacation destinations as well as learning about a variety of travel industry occupations.

Unit Four: CHANGES AND CHOICES

- Students learn to deal with unexpected elements that occur in life such as providing support and assistance to colleagues who are faced with a job loss.
- Students work in groups to develop strategies that may bring lead to new possibilities.
- All students are rendered jobless by large-scale disasters. Working as a team, students offer solutions and learn how their transferable skills will enable them to grasp other employment opportunities.
- Students play the second round of The Spin Game so they can continue to explore occupations, terminology and links that exist between their schooling and the work world.

Unit Five: THE PERSONAL JOURNEY

- Students imagine themselves in the future and reflect on their career journey by talking with individuals in the community.
- Students plan a career day and invite guest speakers. Activities such as these enable the students to share their experiences and new knowledge as well as gather information on the present work world and a variety of careers.

HEALTH EDUCATION AND PHYSICAL EDUCATION CONNECTIONS

The very nature of this activity presents a strong correlation to the *Comprehensive Health Education and Physical Education Standards*. Additional ideas to extend *The Real Game* might include the following:

- Students participate in lifetime recreational activities that match their “game profile” and examine the costs, time commitments, and benefits of the selected activities.
- Students consider the impact of the use of alcohol, tobacco, and other drugs on the quality of life, the achievement of their goals and their future while playing the game.
- Students develop a health profile for their *Real Game* character and relate the impact of health status on lifetime decisions.
- Students investigate a variety of health careers and establish a hypothetical career plan.

High School Level

THE LIFE CYCLE OF A PENCIL

ACTIVITY

- Provide each student with a wooden pencil.
- Brainstorm a list of materials that make up the pencil, along with the natural resources from which they are derived.
- Ask the students where these natural resources and other materials come from.
- Discuss possible origins and locate these on a world map.
- Students learn the word for pencil in the languages of each country and determine whether pencils are, in fact, used in each country.

Examples for a wood pencil are listed below:

Country / State	Resource	Country / State	Resource
Canada	Copper	Poland	Zinc
Mexico	Gum (sap)	Italy	Pumice
Brazil	Rubber	Saudi Arabia	Petroleum
California	Incense cedar	Sri Lanka	Graphite

- Students consider the life cycle of a wood pencil “from cradle to grave.” Where do the makings of a pencil begin? Where does a pencil stub go?
- Students develop a graphic organizer that represents the formation, use and disposal of a pencil (see Appendix B for sample graphic organizers).

Include the following steps in the graphic organizer:

1. Wood harvested; truck hauls tree to mill
2. Mill prepares lumber; lumber shipped to factory
3. Graphite mined and shipped to factory
4. Clay mined and shipped to factory
5. Gums tapped, prepared and shipped to factory
6. Pencils are manufactured
7. Trucker hauls pencils to warehouse or railroad
8. Trucker hauls pencils to wholesale dealers
9. Trucker hauls pencils to retail stores
10. Customer drives to store to buy pencils
11. Customer uses then discards pencil
12. Pencil hauled to landfill or incinerator

Activity adopted from: “Resource-go round,” Project learning tree activity guide, pp. 316-319.

- Students identify the forms of energy (including human) required to extract, process, manufacture, and transport pencils.
- Students identify where materials might be reused or recycled.
- Students identify and research careers related to pencil manufacturing, distribution, use, and disposal.
- Students provide examples of feedback and explain how feedback is used to control, alter, or effect the behavior of a system. Examples include the following:
 - ✦ Overall demand for and sales of pencils;
 - ✦ Seasonal fluctuation of sales or decrease or increase of sales;
 - ✦ Availability of refillable, plastic pencils
 - ✦ Finding new markets for lead pencils;
 - ✦ Increased postage for shipping;
 - ✦ Increased gasoline prices for hauling;
 - ✦ Minimize the environmental impacts of graphite mining, causing a rise in production costs;
 - ✦ Development of new technology that is only feasible if greater bulk of pencils are produced;
 - ✦ Finding new markets becomes a priority;
 - ✦ Using only recycled materials in designing pencil packaging; and
 - ✦ Competition has lower price per pencil; production costs must be cut to compete.

HEALTH EDUCATION AND PHYSICAL EDUCATION CONNECTIONS

- Students select a health item or product and research its origins, use, and disposal.
- Students explore occupational health issues related to the use of computers instead of “pencil and paper”. How does this impact fitness? Students compare the ergonomic effects of technology versus the use of traditional writing implements.
- Some people fear “lead poisoning” from pencils. Develop an ad campaign that educates the public about graphite versus lead. What is the appropriate first aid for a pencil injury? What effect, if any, does graphite have on the body?
- Students investigate the potential community and environmental health consequences of the use of trees for paper production.
- A pencil is made of many component resources. How might these substances be used to promote health or treat health conditions (e.g., petroleum products, zinc, pumice)?
- Students investigate occupational safety regulations and policies for manufacturing companies and relate to the incidence of injuries; students design an injury prevention program for the company.